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METAL SHEET PILING APPARATUS

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Fig. 1

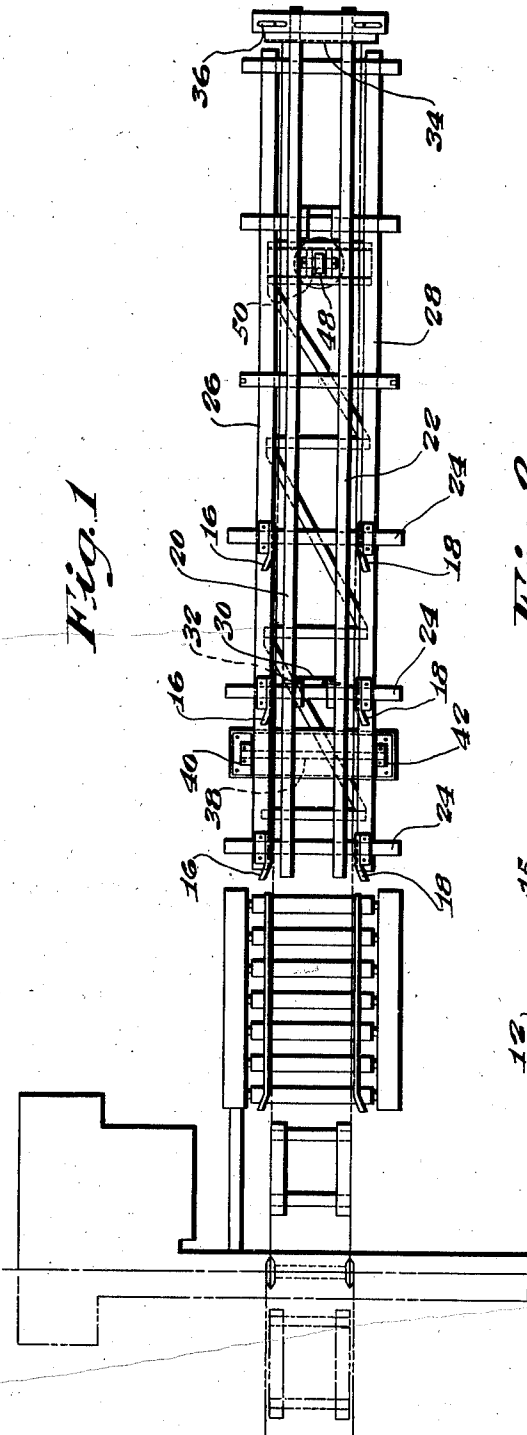
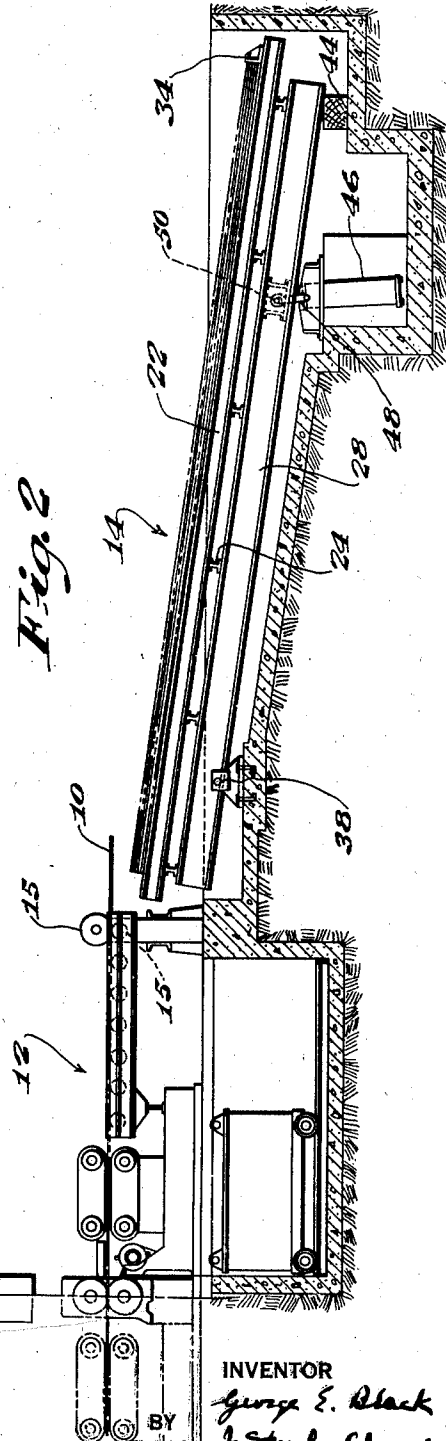


Fig. 2



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METAL SHEET PILING APPARATUS

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2 Claims. (Cl. 214-6)

This invention relates to sheet piling apparatus for steel and other metal sheets.

The invention has for its object to provide a novel and highly efficient apparatus for automatically piling successive steel or other metal sheets which are delivered to the forward end of the apparatus as from a cutting and squaring line, which may be economically manufactured, and is simple and durable in operation.

With this general object in view, and such others as may hereinafter appear, the invention consists in the sheet piling apparatus and in the various structures, arrangements and combinations of parts hereinafter described and particularly defined in the claims at the end of this specification.

In the drawing illustrating the preferred embodiment of the invention, Fig. 1 is a plan, and Fig. 2 a longitudinal sectional view illustrating the present sheet piling apparatus in operative position with respect to the end of a cutting and squaring line by which the individual steel sheets are produced.

In general, the present sheet piling apparatus comprises a supporting frame upon which the steel or other metal sheets are to be piled one upon the other. The frame is provided with suitable longitudinal guides for directing the course of movement of successive sheets delivered upon the frame at the front end thereof. Provision is made for movably supporting the frame in an inclined position so that the rear end of the frame is disposed sufficiently below the front end thereof so that as the steel or other metal sheets are delivered onto the front end of the frame they automatically slide by gravity into pile forming position. The frame is arranged to be raised by power operated means into a horizontal position after the pile of sheets has been formed thereon.

Referring now to the drawing the finished sheets 10 are delivered from the end of the cutting and squaring line 12 and delivered successively from the unit 14 upon the tiltable table. The unit 14 as herein shown comprises a tiltable table, the forward end of the table being disposed below the line of the finished sheets 10 being delivered from the cutting and squaring line 12. The unit 14 is normally arranged at a downwardly inclined plane with relation to the delivery end of the sheet forming apparatus so that in operation the sheets will ride down the inclined plane with the assistance of gravity as they are delivered to the forward end of the apparatus by the kicker rolls 15. As herein illustrated the

unit 14 may be constructed from structural members in the form of I-beams. In the preferred embodiment of the invention the apparatus is disposed in a pit below the floor line.

In operation the finished sheets 10 are received onto the forward end of the piler between adjustable guides 16, 18 and on top of longitudinally disposed rails 20, 22. The adjustable guides 16, 18 are mounted upon transverse tie pieces 24 and are capable of being advanced laterally to conform to the width of the finished sheet. As herein shown the tie pieces 24 are supported upon the side frames 26, 28.

Provision is also made for permitting lateral adjustment of the sheet supporting rails 20, 22, and, as herein shown, transverse bars 30 to which the rails are attached, are provided with slotted portions 32, to permit the lateral adjustment of the rails.

The lower end of the piler is provided with a stop member 34, and, in operation, the successive sheets ride down the inclined plane by gravity and come to rest against the stop. The stop member 34 is mounted for longitudinal adjustment, across the top of the rails 20, 22 and slots 36 are provided to permit the rails to be moved with relation to the stop when transverse adjustment is effected.

The unit is supported at its forward end upon a cross shaft 38 pivotally mounted in brackets 40, 42, disposed below the floor line. Normally, the lower end of the piler rests upon a block 44, the position of which determines the angularity of the piler. As herein shown, provision is made for raising the lower end of the piler so that the unit will be in a horizontal position in order to conveniently remove a group of the finished sheets. Any suitable means may be provided for this purpose, such as a pneumatically operated lifting device, indicated generally at 46. The air lifting device is connected to the piler by a link 48, the upper end of which is attached to the structure by a pin 50. In the operation of the device, after a predetermined number of sheets have been piled up, the lifting device is operated and the piler pivots at 38 to present the piler in a level position.

From the above description, it will be observed that the sheet piling apparatus of the present invention provides a simple and economical method for automatically piling successive sheets in superposed relation as received from the end of a shearing and trimming line in a manner such that a group of the superposed sheets may be conveniently handled when removing the finished

sheets from the machine. It will further be observed that the provision for raising the tiltable table to a horizontal position provides suitable access to the finished sheets so that the operation of removing the finished sheets is facilitated.

While the preferred form of the apparatus has been herein illustrated and described, it will be understood that the invention may be embodied in other forms within the scope of the following claims.

Having thus described the invention, what is claimed is:

1. Sheet piling apparatus for steel and other metal sheets comprising an elongated supporting frame upon which the pile is to be formed, said supporting frame including at least a pair of elongated runners, at least a pair of cross ties upon which said runners are supported, at least a pair of elongated supporting bars upon which said cross ties are supported, means for pivotally supporting the front end of the supporting frame, a fixed support upon which the rear end of the frame normally rests to dispose the rear end sufficiently below the front end thereof to cause successive steel or other metal sheets delivered one upon the other at the front end of the frame to slide with the assistance of gravity to the rear end of the frame and to form a pile, side guides adjustably mounted upon said cross ties for later-

ally guiding the sheets during their movement down the frame and a stop member at the rear end of the frame for aligning the ends of the sheets.

2. Sheet piling apparatus for steel and other metal sheets comprising an elongated supporting frame upon which the pile is to be formed, said supporting frame including at least a pair of elongated runners, at least a pair of cross ties upon which said runners are supported, at least a pair of elongated supporting bars upon which said cross ties are supported, means for pivotally supporting the front end of the supporting frame, a fixed support upon which the rear end of the frame normally rests to dispose the rear end sufficiently below the front end thereof to cause successive steel or other metal sheets delivered one upon the other at the front end of the frame to slide with the assistance of gravity to the rear end of the frame and to form a pile, side guides adjustably mounted upon said cross ties for laterally guiding the sheets during their movement down the frame and a stop member at the rear end of the frame for aligning the ends of the sheets, and power operated means for raising the rear end of the frame into a substantially horizontal position whereby to facilitate the removal of the completed pile.

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